

CLEAN COPY

1 AGCTTTATAA CCATGTGATC CCATCTTATG GTTCAATCC ATGCACAGGA  
51 GGAAATTGT GGGCACGAAG TTTCCAAAGG GAAATTTAT AGATTGGTAG  
101 TTAATGAAAT ACAGTTTTCC TCCTTGGCAA ATTTAATTTA CTAGCTTCAC  
151 TGTATAGGAA AAAGCAGGAA AAAAATTAAA ACCAACTCAC CTCCAAACCT  
201 GTTTTGAGCT TTTACTTGTC TGCCCAATTG ATAGTTTCTA CTCTCTGCTT  
251 TTGATGAAAA TATTTTTTAT TATTTTAATG TAACTTCTGA AAATAAATT  
301 ATCTAGAAGC AAATAAAAAG ATATTGCTTT TATAGTTCCC AGAAGGAAAA  
351 AACAAACACT AGGAAAGTTC TATCTATCAG ATGGGGGAGA TGTGATGGAG  
401 GCAGTGATAT TTGAGCTGAG CCTTGAACAA TGAACAGGAG TCTACCAAGC  
451 GAGAGGCTAG CGGGTGGCCC TCAAGATAAA ACAACAGCAT GTACAAAGGC  
501 ATGGAGACAT ACACATCTTG ACTCTTCCAG GAATGGTGGG AACGCTGGTG  
551 GAGCTAGAAT GTAGGTACAT AGCATAAAGT GGCAGACGGG AAGCCTTTGG  
601 AAATCTTATT ACATAGGACC CTGGATGCCA TTCCAATGAC TTTGAATTTT  
651 CTGTAGGCTG CCAGCGAAAT TTCCAAGCGT GATAGAGTCA TGTCTATCTA  
701 TGCACTTCAG AAAGACAACC TCAGGGTTAA TGAAGAAAAT GCATTGGAAT  
751 ATAAGAAACT GGTGACCAGA GTGATCAATT GCATGACTGT TGTGAAAGTC  
801 CAGGTGAGGG GAGCTGTGGG CAAGGTCAGA GTTGAAGGC ATTTGAGAGA  
851 TAAAATGACA GTAACATAAGT AGATGTCAGG CTGAGAAGAA AGGGCTGTAC  
901 CAGATATATG GTGCTATCAT TAAGTGAGCT CAACATTGCA GAAAAGGGGT  
951 AGGTTTGGTG GGAGTTGCTC ACAAACATG TTTAGTCTAA GCAAACCAT  
1001 TGCCATGGGC TCAGATAAAA GTTAAGAAGT GGAAACCATT CCTACATTCC  
1051 TATAGGAGCT GCTATCTGGA AGGCCTAGTA TACACGTGGC TTTTCAGCTG  
1101 TGATTTTGTT TGATTTTAGG GATTATTCTT TTTCTGAATC TGAGCAATGT

FIG. 1

1151 TAGCGTGTA AATACTCACA CCCACAGCTT TGA CTGGGTG AGAAGTTATC  
 1201 ATAAATCATA TTGAGTTTGT TGTGATACCT TCAGCTTCAA CAAGTGATGA  
 1251 GTCAGGTCAA CTCCATGTGA AAGTTCCTTG CTAAGCATGC AGATATTCTG  
 1301 AAAGGTTTCC TGGTACACTG GCTCATGGCA CAGATAGGAG AAATTGAGGA  
 1351 AGGTAAGTCT TTGACCCAC CTGATAACAC CTAGTTTGAG TCAACCTGGT  
 1401 TAAGTACAAA TATGAGAAGG CTTCTCATTC AGGTCCATGC TTGCCTACTC  
 1451 CTCTGTCCAC TGCTTTCGTG AAGACAAGAT GAAGTTCACA GTGAGTAGAT  
 1501 TTTTCCTTTT GAATTACCA CCAATGATT GGAGACTGTC AATATTCTGA  
 1551 GATTTAGGAG GTTTGCTTCT TATGGCCCCA TCATGGAAAG TTTGTTTTAA  
 1601 AAAAATTCTC TCTTCAAACA CATGGACACA GAGAGGGGAA CAACACACAC  
 1651 CAGGTCTTGT TGGGGGGTGG AGAGTGAGGG GAGGGAACCT AGAGGACAGG  
 1701 TCAATAGGGG CAGCAAACCA CCATGGCACA CATATACCTA TGTAACAAAC  
 1751 CTGCACGTC TGACATGTA TCCCTTTTTT TTAGAAGAAG AAATAATGAA  
 1801 AAAAAACCTT TTTTCTATTT ATATAATCAT GGCATTTATA AGCATCTCTA  
 1851 TAGAGAAGGA TAATTGTGCT GAGATTAGAC AGCTGTCTGA GCACCTCACA  
 1901 CTGACCTATT TTTAACAAAA TGACTTTCCA CATCACCTGA TTTCGGCTCC  
 1951 ATGCRGGGTA AGCAGTTCCT AAGCCCTAGA AAGTGCCGAT CATCCCTCAT  
 2001 TCTTGAATTC CTCCTTTTAT TTACCAAAT TCCTGAGCAT GTTCAGGAAA  
 2051 GATGAAAAGC TTATTATCAA AATAAGTGGC TGAGATAGAC TTCTGTGAC  
 2101 ATTTGTTACA GTAAAATGGG TCTCCAAGAA AGAAAGATT GCCTTGGGCT  
 2151 CTAGCATGGC CATTTATTTA AGAAAGCATC TGAAACATGA AGCTACCACA  
 2201 GCATCTCTCC TGTGGTTCCA GACGGAAGCC TGAGAGTCTA GGAGGAGGTG  
 2251 GACCGAGAAA CCCTGCCAAA GTAAC TAGTA GTGCCGGGTT TCTCACAACA  
 2301 CGATGCAAAG GGGCTAGAAT CAGATGACTA TTTTCATGTT TCAACATACT

FIG. 1 Cont.

2351 ACACACTGGA AACGTTACG GCAGACTCTA CTTTATAATG GGGCTGCAAA  
 2401 TGTAATGA CTACTAGAAC TAGGTCCTCT TAATAGCAGC AAAGTTTAAA  
 2451 AGGGTCAGAG GGAGCTCCAG ACACAGGTTA GATTTGATTT CTCTCCTACT  
 2501 TCTGCTGTGA ACAAGAGGTA TAAGTTTGGC CAACTCACTT AACCCCTGAA  
 2551 GCTCAGTTAC CTTATCTGTA AAATGATTGC ATTGTACTAG GTGTTCTCTA  
 2601 AAATTTCTTC TACCTCTGAC TTTTATAGGAG ACTAATTTTT AACTCCTTTT  
 2651 TAAGCTATTG GGAGAAAAAT TTAATTTTTT TTCAAAGTT ACCTTGAATC  
 2701 TCTAGAGCAG TTCTCAAAC TATTTTGTCC CAGGCAAAGG AAATGAGACT  
 2751 AGGTACCCAG AATGAGGCAC CCTGCATAAA GCTCTGTGCT CTGAAAACCA  
 2801 ATGTCAGGGA CCCTGTGATA AATAATTAAA CCAAGTATCC TGGGACACTG  
 2851 CTAGTGACAT CGCCTCTGCT GATCACTCTT GCCAGCGAGA CACTCTATAC  
 2901 TTGCTTTCTC ATCATTGGCA TCCAACTGC CTACTAATCC ATTGCTTTGG  
 2951 AAAGTTTTTT TTAATAAAAA GATTATTTCT ATTAGGAGGA AAACATCCCA  
 3001 TGTTAAATAG GAAAATTAAC TGAAATCATT TTCAGATGTG ATTTTATGCA  
 3051 CTTATAGCCA TTCAAACCA TGGTATTCAT TTATACTATG CTATTTATTG  
 3101 TAAACTTCT TTTTTTTTCC AAGGAAAATA AGATAGTTTG CTTTATTTTA  
 3151 AACAGTAAC TTTCTTATAT TGGGGCACTG ACCAAAATTC AATACTGGTA  
 3201 CAAATATGTT ACCTAGGGGG TCAAAATATG TGCCAGGTGA ATTTTCTGAA  
 3251 TTTCTCTAAA GAGAGAATTT TAAACCTTAT AAAACAATTA GAAACAAGTG  
 3301 AGTGAGAGGT GAGCATCAAC AACCTGTGTA ACATAAGCCA CAGTACAAAT  
 3351 TTAAGCTGAA TAACCAAGCC ATGTCAGTTA TCCCAAATCA TTTTGTGTTAA  
 3401 TATTTAGGAG GATACACATA TTTCAATAA CTAAAAGTG AATCTTTACT  
 3451 CCTATCTCTT AATACTCGAA GAAGTATAAC TTTCTTCTT TACTAGATTT  
 3501 AAATAATCCA AATATCTACT CAAGGTAGGA TGCTGTCATT AACTATAGCT

FIG. 1 Cont.

3551 GAGTTTATCC AAAATAGAAA AATCATGAAG ATTTATAAAG CATTTTAAAA  
 3601 ATAATCATTT ATAGCAAGTC CTGAAAGCT CTAAATAAGA AAGGCAGTTC  
 3651 TCTACTTTCT AATAACACCT ATGGTTTATA TTACATAATA TAATTCAACA  
 3701 AAACAGCATT CTGACCAATG ATAATTTATA GGAAATTCAT TGCCAAGTA  
 3751 TATGTTTTAT TATAAAGTTA ATATTTTGAC CAATCTTAAA AATTTTAAAA  
 3801 CTCTATTCTG ACATTTCCAG AAGTATTATC TTAGCAAGTC ATCTTTATGA  
 3851 TACCACTTAT TAAACTGAAG AGAAACAAGA TGGTACATTC TGGGTTTTAC  
 3901 TTTAAAAGGG ATTTGATTCA ATAATTTGAT TTATCACTAC TTGAAAATTA  
 3951 CATTTTCTTC CTCAGACTGG ATGGCAATGA GATGAAAGCA GCTTTCCTGG  
 4001 CTCTCAACTT CCCTTCTTCA TCAATTTTTT CAGCGTTTCA TAAGGCCTAC  
 4051 ACTAAAAATT CTAAACTAT ATATCACATT AATATAATTA CTTATAATTA  
 4101 ATCAGCAATT TCACATTATC GTTAAACCT TTATGGTTAA AAAATGCAAG  
 4151 GTAAGAGAAG AAAAAACAC ATTGAACTAG AACTGAACAC ATTGGTAAAA  
 4201 TTAGTGAATA CTTTTCATAA GCTTGGATAG AGGAAGAAAG AAGACATCAT  
 4251 TTTGCCATGT AACAGGAGAC CAATGTTATT TGTGATTCA GATTGTCTTT  
 4301 GCTGGACTTC TTGGAGTCTT TCTAGCTCCT GCCCTAGCTA ACTATGTAAG  
 4351 TCTCACCTTT TCAAGTTTGC TACCAAATG CATTTGCAAG GAAATGTGAT  
 4401 ATTAATCAC TCTCAATCTC TTATAAATT CAGAATATCA ACGTCAATGA  
 4451 TGACAACAAC AATGCTGGAA GTGGGCAGCA GTCAGTGAGT GTCAACAATG  
 4501 AACACAATGT GGCCAATGTT GACAATAACA ACGGATGGGA CTCCTGGAAT  
 4551 TCCATCTGGG ATTATGGAAA TGTAGGTAGT CAACGTGCAA TTTTCACTTT  
 4601 ATTGTTTAAA AATACGACTT CTTTTTAACA AAAAATGTGC ATGTTAACCA  
 4651 TAAAGAAATT AAAAATAAAT TCTAATTACA CATAGCATAC AGTTATAAGT

FIG. 1 Cont.

4701 AAAGGTGACC ATTTTGCTCA TCCGATTTTG TTCCCTAGAG ATAACTACTG  
 4751 TTAATAAGTG TTGCATGATC AGTTAAAATT CAAACCAACA AACACTATGT  
 4801 TCAAGGGATT GTGGGTATAT ACAACAAATA TGAACATCCT TTTGCCTTGC  
 4851 CTGCAGATAC CCTCAATAAT GCTGAAAGAC TTATACAACA TTA CTGCTTC  
 4901 CAAAGCTTAG ACTATCTCAC TTTGTTTTCA AAGGAGGTTT TACGACCTTC  
 4951 TAAAGAGATT GAAATTGACA TTTCACCTAA AACTCGGGAA ATGTAAATGA  
 5001 CAATATTAAT TG GTAAGAGA GGAAAGAAGA AAGAAAGAAG GAAGGAAAGA  
 5051 AAGAAAGAAG GAAGGAAGGA AAGAAAGAAA GAAAGAAAGA AAGAGAGAGA  
 5101 AAGAAAGAAA AAGAAAAAAG AGAGAAAGAG AGAAGGAAAG AAAGAGAGAA  
 5151 GGAAAGGAAA AGAGAAGCAA AGAAAGAGAG GAGCAAAGAA AGGAACACTT  
 5201 AGCACTAGTT GGGAGACCCA ACTCTGGAAT TATCAGCTAT ATATTTAACA  
 5251 AACGTTATAC TTTTAAATAG CAAACTCTTT ATTGTTTCAA TTTTATCTGG  
 5301 TCAATTGGAA AAATAATTTT TGTCTTATCT GTCTCCTTGA AATGTGAGGA  
 5351 TCAAAGGAGA CTAAAACATG ATAGCTTTTA AAGTCTATTT CAGTAAACAA  
 5401 GACTTATATA GAGGGGTTTT TATCATGCTG GAACCTGGAA ATAAAGCAAA  
 5451 CCAGTTAGAT GCTCAGTCTC TGCCCTCACA GAATTGCAGT CTGTCCCCAC  
 5501 AAATGTCAGC AATAGATATG ATTGCCAAGC AGTGCCCAT CCAGTGCTCT  
 5551 TATCCCAGCT CATCAGATC TTGGAGTTCC CATTCTCTC TGCAGGTGGA  
 5601 ACTGACCTCT GATAAGAAAA GCTCCTCGGA GAACACATGC CTCACTATTT  
 5651 GCCATCTACT TTAACAGGGC TTTGCTGCAA CCAGACTCTT TCAAAGAAG  
 5701 ACATGCATTG TGCACAAAAT GAACAAGGAA GTCATGCCCT CCATTCAATC  
 5751 CCTTGATGCA CTGGTCAAGG AAAAGAAGGT AAAAATAAAA GGCTTTTTAT  
 5801 TTTTGGTGAG GGGAGAGGTT TTACATCCTT CAGTAAATAA CGAGAAGATC  
 5851 ACAGTCATTC CCTCTTGA CTACAGTATGTT GTAGTGTGCA GCACAAAGGG

FIG. 1 Cont.

5901 GGAAGTTATT GGTGATTGCC TGAGGGAAGG CAACTTCTGC CACATCAAAT  
 5951 GCTGTGGCTC ACACCTACCT CTACAACCGC TGAGCAAAGC ACTTGAAACC  
 6001 TTGACTGTTA GAGGAGCAAA GCTCTGGTCA CACCAATAGG AGCCTCAGTA  
 6051 CTTTGCCAAG GACATTTTTC TGCAAGAGTT AGTTAGGGTT ATTAGATTTA  
 6101 GCAAATGAAA ATAGAAGATA TCCAGTTAGG TTTGAATTTT AGGTAAGCAG  
 6151 CAGGTCTTTT TAGTATAATA TATCCTATGC AATATTTGGG ATATACTAAA  
 6201 AAAAGATCCA TTGTTATCTG AAATTCAAAT GTAACGGGT ATTGTATATT  
 6251 TTGTCTGGCC ATACTAATCC AGGTGAGTGG AAAGAAGAGA TCCATAATGT  
 6301 TTTAAAATAT TTGCCTGAGT TCATATTCCT ATAACGATA AATGAGTACC  
 6351 TTTCATTGAC AAGGTAGAGA AAATAAATAA ACTGCATTCT CAGAAGATGA  
 6401 TTATTACATA GTCTAATCCA AGGAATCTAT GATGACCAAA TGAGGTCCAA  
 6451 GTTGCAGAAAT AAATTAAGCC TCAGACTTCT GTGTTTATGA GAAGCTGAGG  
 6501 TTTCAAACCA GGTAAATCCC TTAGGACACT TAGAAATGCT AAGATATACA  
 6551 GAATAAGCTA GAAATGGCTC TTCTTCATCT TGATTATGGA AAAATTTAGC  
 6601 TGAGCAACAC TCACTGTTGG CCTCGTATAC CCCTCAAGTC AACAAACCAC  
 6651 TGGGCTTGGC ATTCATTCTC TCCCATTCTT CCTTTCTACC TCTCTTTCC  
 6701 ACACTCAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG  
 6751 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGGAAA  
 6801 AAACATTGCA AACATGTGTC GTGGGATTC AACATACATG GCTGAGGAGA  
 6851 TGCAAGGTGA GTAGCATCCC TACTGTGCAC CCCAAGTTAG TGCTGGTGGG  
 6901 ATTGTGAGAC TATCCTCGCG CGTGTCCATA GTGGGCACCA GTGATGCAGG  
 6951 GATGGTCATC AAGGCCAACA TTTGTGCAGT GCTTGCTCTG TGCCAGGTAC  
 7001 TGTTCTATGT GCTTTAAGTG TGTTAACTCG GTTCTTCACA GCAATCTTAT  
 7051 AGGTTCTATT TTAATCCTAC TTTATGGATG AGGAAACTGA GGTACAGAGA

FIG. 1 Cont.

7101 GGTCACAAAA TCCTTGCCTG GGTCAATTCC AAGCATTTTG GCTGTGGATT  
 7151 CTGTGCTCTT AAATATTATG GAACACTGCC TTTTAAGTGT GAATCAAGAG  
 7201 TAGACTCAAG TCATATTCAA AAGAATGCAT GAATGGCTAA ATGAAAGAAG  
 7251 AATGCTAATA GAATCTATTA ACTTTCTATA GCTCAGACAA TCACTTAATT  
 7301 TCTGGACATT CAAAGAACAG CTGCACACAA ACAAAGTGC TACCTAGGGA  
 7351 CCTAACTTAA TGGCAATTTT CCAGATCTCT GAATTGATTG ATTTTCATCAC  
 7401 AACAAAGTAGA TAAACCTTGA CATTAGCACA TAGCTAGTTT GGAAACCCCT  
 7451 ACTCCCCCAA TCCCCTCCAA GAAAAGAGTC CTAAATAGA CATTAATATA  
 7501 GGCTTCTTCT TTTCTCTTA TTAGAGGCAA GCCTGTTTTT TTA CT CAGGA  
 7551 ACGTGCTACA CGACCAGTGT ACTATGGATT GTGGACATTT CCTTCTGTGG  
 7601 AGACACGGTG GAGAACTAAA CAATTTTTTA AAGCCACTAT GGATTTAGTC  
 7651 , ATCTGAATAT GCTGTGCAGA AAAAATATGG GCTCCAGTGG TTTTACCAT  
 7701 GTCATTCTGA AATTTTCTC TACTAGTTAT GTTGATTTC TTTAAGTTT  
 7751 AATAAAATCA TTTAGCATTG AATTCAGTGT ATACTCACAT TTCTTACAAT  
 7801 TTCTTATGAC TTGGAATGCA CAGGATCAAA AATGCAATGT GGTGGTGGCA  
 7851 AGTTGTTGAA GTGCATTAGA CTCAACTGCT AGCCTATATT CAAGACCTGT  
 7901 CTCCTGTAAA GAACCCCTTC AGGTGCTTCA GACACCACTA ACCACAACCC  
 7951 TGGGAATGGT TCCAATACTC TCCTACTCCT CTGTCCACTG CTAA (SEQ ID NO:11)

FIG. 1. Cont.

1 CATGCTTGCC TACTCCTCTG TCCACTGCTT TCGTGAAGAC AAGATGAAGT  
 51 TCACAATTGT CTTTGCTGGA CTTCTTGGAG TCTTTCTAGC TCCTGCCCTA  
 101 GCTAACTATA ATATCAACGT CAATGATGAC AACAACAATG CTGGAAGTGG  
 151 GCAGCAGTCA GTGAGTGTC ACAAATGAACA CAATGTGGCC AATGTTGACA  
 201 ATAACAACGG ATGGGACTCC TGGGAATTCCA TCTGGGATTA TGGAAATGGC  
 251 TTTGCTGCAA CCAGACTCTT TCAAAAGAAG ACATGCATTG TGCACAAAAT  
 301 GAACAAGGAA GTCATGCCCT CCATTCAATC CCTTGATGCA CTGGTCAAGG  
 351 AAAAGAAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG  
 401 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGGAAA  
 451 AAACATTGCA AACATGTGTC GTGGGATTCC AACATACATG GCTGAGGAGA  
 501 TGCAAGAGGC AAGCCTGTTT TTTTACTCAG GAACGTGCTA CACGACCAGT  
 551 GTACTATGGA TTGTGGACAT TTCCTTCTGT GGAGACACGG TGGAGAACTA  
 601 AACAATTTTT TAAAGCCACT ATGGATTAG TCATCTGAAT ATGCTGTGCA  
 651 GAAAAAATAT GGGCTCCAGT GGTTTTACC ATGTCATTCT GAAATTTTTC  
 701 TCTACTAGTT ATGTTTGATT TCTTTAAGTT TCAATAAAAT CATTTAGCAT  
 751 TG (SEQ ID NO:12)

FIG. 2



1 MKFTIVEAGLLGVFLAPALANYNIDVNDNNNAGSGQQSVSVNNEHNVAN 50  
51 VDNNGWDSWNSIWDYGNNGFAATRLFQKKTCIVHKMKKEVMPSIQSLDAL 100  
101 VKEKKLQKGPGGPPPKGLMYSVNPNKVDDLSKFGKNIANMCRGIPTYMA 150  
151 EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN 185 (SEQ ID: 13)

FIG. 3

1 GAATTCAAAC AGCAGGCCAT CTTTCACCAG CACTATCCGA ATCTAGCCAT  
 51 ACCAGCATTG TAGAAGAGAT GCAGGCAGTG AGCTAAGCAT CAGACCCCTG  
 101 CAGCCCTGTA AGCTCCAGAC CATGGAGAAG AGGAAGGTTG TGGGTTCAAG  
 151 GAGCTTTTCA GAGTGGAAAT CTGTGGATCA GTGATTATA AACACAGTT  
 201 TCCCCCTTA TTAGATTGA ACCACCAGCT TCAGTTGTAG AAGAGAACAG  
 251 GTTAAAAAAT AATAAGTGC AGTCAGTTCT CCTTCAAAC TATTTTAAAC  
 301 GTTTACTTAT TTTGCCAAGT GACAGTCTCT GCTTCCTCTC CTAGGAGAAG  
 351 TCTTCCCTTA TTTTAATATA ATATTTGAAA GTTTTCATTA TCTAGAGCAG  
 401 TGGTTCTCAT CCTGTGGGCC ATGAGCCCTT TGGGGGGGTT GAACGACCCT  
 451 TTCACAGGGG TCACATATCA GATATCCTGC ATCTTAGCTA TTTACATTAT  
 501 GATTCATAAC AGTAGCAAAA TTAGTTAGGA AGTAGGAACA AAATAACGTT  
 551 ATGGTTGTGG TCACCACTAT GTTAGAGGGT CCGCAGCATT CAGAGGGTTG  
 601 AGAACTGTTG TTCTAGAGGC AAATAAGAAG ACAGAGTCC TTGATAGGGC  
 651 CCAGAGGCAG TGAAAGAAGT TTCCACGTAG AAAGTGAAGA AGGTCTGGTG  
 701 TCCGAAGCAG TGAGGAACCT AAAAAAGAA AACCAAAAC ATTGCCAACT  
 751 AACAGTCCAG GAGAAGAGCG GGCATGAAA GGCTGAGTTT CCATGGGATG  
 801 CCTTGAATGG AATCAGAGTG TGGGAAAATT GGTGTGGCTG GAAGGCAGGT  
 851 GCCGGGCATC TCAGACGCTG GTAGCTGGGG AACAGGAAA CCCCTTTAGG  
 901 ATCCCAAGAT GCCATTCCAA TGAGCTTGAG ATTTTCTCA TGGACTGCCA  
 951 GTGAATGTTT CTACGCTCCG GAAATTAATG TTTACTTATT TTCCATATTC  
 1001 TAGGGGAGAA CCCTGGGAAA AATGGAGGAC ATTCATTGAA ATATCTGAGT  
 1051 CCTGGGATAA GGCAGGCTTG GTCCTACAAC TCTGGTAAAA GTCCATCAGG  
 1101 AAGTGCCTTG ACCAAGGCTG GAGTGGAGAG CTGTTGGTGA GATGTAAGGG

FIG. 4

1151 CAAGGTTTAG TTGCTAGATA TGTAGATGGC AAGATGGTGC TGCCAACAGC  
 1201 CCCAGAGCT CTAACCCACT GAGAAACCCA GGAATGAATG ATGGGAGATG  
 1251 GCTTTGGTGC CAGCTGCTAG TGACATGGCT GGAAAGCTGC ACTGGCTTCG  
 1301 AGGCCAGACA ATTCTCAAG GAAACATCTG GCCAGGGTGC AAGGGCCAGT  
 1351 TTCCTTCCTT GGAGTTCCTT TCACAGCTAA GAACATCATC CCCCAACCAC  
 1401 TGGTTTTGTT AAAAAGTTTT CAGTATGACT TGAGCATGGT CAAGAAGCAT  
 1451 AGAGAGGGGG AAATAAGGGT GGAAGGAGCT GGAGAAAGCT TACAATAGGA  
 1501 CTGGGTAAAG GGAAGGAGAA GAAACCATTC CCGCATTCCC ATAGGAGCCA  
 1551 GTACCAGGAA GGGCAGGTGT ACACACAGAT CTCATCTAAG GCCATGTTTG  
 1601 GTTTAGGGAT TACTCTTCTC CCGAATCTGA GCAGCAGCAA TACGTAAAT  
 1651 ACCCACACCC ATGGCTTCCA TATTCCAGAA CTTATCACA ACCGTGTAGA  
 1701 GTTACTGAG ATACCTTCGT CAGAGGATGA GTCAGAGGCC TCCTGCCTAA  
 1751 GGGCCCTACT GAGCAGGCAG CTAAAGGCTT CCGGGCCTCT GCAGCTCCAC  
 1801 AGATACAGGA GAGGGAAGCA GATAAGCCGT GGAATCCACC TGAGCACACC  
 1851 TAGCTTGAGC AAAGCTGGTC AGGTACAAAT AGCAGAGGGC TGAATGTCTG  
 1901 TGAGCAGGCC GCCTGATCCT CTGCTCCACC AACTCCTGC CGCCATGAAG  
 1951 CTCACAGTAA GTCAGATCTT CTTTCAATG CAGCACCATA CAACATTAAT  
 2001 AGTCAGGGGT GAGGGGTCT GACTCTTACG GCACTGTTAC CATAGTGGAA  
 2051 ATATTCTCCT TTCTTTTCAT GGAATCATGG TGTTTACAAG CATGTCCATA  
 2101 GAGAAGAAGA ATTGCCCCGG AAGAGCCTGT CACAGGCTGA ATACTGTAGA  
 2151 ATTGTCTTTC ACACCATCTG TTCCAAGGTT CTAATTAAGA CGAGCAGTCT  
 2201 CTGGGCTCCA GAAAGAGTCT TTCTTAGCCT TGATCTCTTT CTTATTTCTG  
 2251 ATTTCTCCTT TCTTATCCAT GATTTCCTACT TTTACCAGTT CTGGGCATGT

2301 TCCGGTCAGA CTGGAAGATC ACTGTTGTCA AAAC TAGTCT TCAACACTCT  
 2351 TGGCTGTTAA CATGAAAACA ACGGTCCTTG GGCCTGTGC AAGCATTCT  
 2401 TGGAGAAAGT CTCTGGGGAT GAAGCTATCT CAGTTCCCC ACTGAAGTCC  
 2451 TAGGATACAG AGGCTCAAAC AGAGTGCACA TATTCAATTT CAGCATACTC  
 2501 TATTGGCGCT GCTTTATGAA TCATATGAAT TTATGGAATT GGAAATGTAA  
 2551 ACTATGACCA AGAAGCGTCC ACCTCAGAAC AGGTGGGTG GGGA ACTCCA  
 2601 AGCACAGGCC AGAGGGCTGC GTTCTCTTC TAGTCTGTC TAGAGGAGTG  
 2651 GTTCTCGACC TTCCTAATGC TGTGACCCTT TAATACAGTT CCTCACGTTG  
 2701 TCGTGACTCC CAGCCATAAA ATTACTTTCA TTGCTACTGC ATA ACTGTAA  
 2751 TTTTGCTACC ATTATGAGTT GTAATGTAA TATCTGATAT GCAAGATACC  
 2801 AGATAACCTA AGAAACGGTT GTTTGACCTT TAAAGGGGTC ACAACCCACA  
 2851 GGTGGAGAAC TACTGGTCTA GGGTCCTTTA CAGTCCTTTA GCTGCCTCAT  
 2901 TTACAGGAGA TAACATCATG CTCAAAACT CCTCCACAT TTGGCTTTTT  
 2951 GGGTTGTTTT GTTTGTTTT TCAAGACAGG GTTCTCTGT GTAGCCCTGG  
 3001 CTGTCCTGGA ACTCACCTTT GTAGACCAGG CTGGCCTCGA ACTCAGAAAT  
 3051 CCGCCTGCTT CTGCCTCCTG AGCGCTGGGA TTAAAGGCGT GCGCCACCAT  
 3101 GTCTGGCTCA CATCTGGCTT TTTAAGAGAC CGATTTTAACT TTCTTGCAAT  
 3151 GAAAATAAAT ATAGTAGAAA TGCTTAACCT ACTAAGACAA TAAAAACAGG  
 3201 ATTCCTTCTG CTAGGAAGAA CACGTTCCAG ACTAAGGAAA AAAACCTTTT  
 3251 CAGGGCTTTC ATTACACTGT GCCATGCACT AATTTTATGT TTTCTTCATC  
 3301 AGTTTTCACT GTCTGAAATT CAGTGTCAAA ATTCTAAGAC TACATATGAA

FIG. 4 Cont.

3351 TATCATTACA GTAACCTCAGC AATTCTATGT TACCAGTAAG TTTTCTGTA  
 3401 GTTTAAAAAA AAGGTGGAAG AAGAAAGCAC AGATAGTTTA GCACATGGGT  
 3451 AAAATCAGTA ACTATTTCTG ATGAGCTTGG TGAAGATGCT GTAAACCATG  
 3501 CGACCACCAG TCCTGTTCTC TGTGCTTTCA GATGTTCTGTC GTGGGTCTGC  
 3551 TTGGCCTCCT TGCAGCTCCT GGTTTGTCTT ACGTAAGTCT CATTTTCTG  
 3601 AAGTTCATTG TCAAACTGC ATTTACAGTG AAATGTGATC TTAAGTCACC  
 3651 CTCTGCTTCT TATGAACATT AGACGGTCAA CATCAATGGT AATGATGGCA  
 3701 ATGTAGACGG AAGTGGACAG CATTGGGTGA GCATCAATGG TGTGCACAAC  
 3751 GTGGCCAATA TCGACAACAA TAACGGCTGG GACTCCTGGA ATAGCCTCTG  
 3801 GGACTATGAA AACGTATGTA ATGGACACAC AGGGTAAAGA TATGGTGTAG  
 3851 CCACCACCCA TTAATTTTC TGAGGTGAAT TCTAGCTGTT CATGAACATT  
 3901 AAAAGCTACC AGTAAAGTG CCCATTCCAC TCAAAACAAT TTTACTTTT  
 3951 TGCATATAAT TATTGCTAAT AAGTATTACA CAATAGGTCG AAATTCAAAG  
 4001 GGATCAATAG TAAGGATAAA AACTATGTAC AAAGACAAAC ACAGCATCCT  
 4051 TTGGTCTTCC CTGCAGAGAG TCTCCATGAT GTTAAAGGTC CAATGTTTAA  
 4101 TGGAGGCTGA ATGAAATACG AATGCCTCTG TGATGGAAAA GGCCCAACAT  
 4151 CTTATGGAGA ATGAGTGAAG TATGAATGCT ATTAGTTGTA AGAGAAGGCG  
 4201 ATGCAAAGCA AACTTGGCA CCACCTGCCA ATTACTACTT TCCTATTTAA  
 4251 ATGTAGTTTA AAAAGCAAAG CCTGTCTTCC CTGCCTCCTG GAAACACTGC  
 4301 GGATGGAGGT AGACCAAGGT ATGACAGCCT TTAAGGTTT GTCAGCAAA  
 4351 CACTCCCCCA TACACACATA CACACACCCT CCTACTACAC TGGAAGTAA

FIG. 4 Cont.

4401 GCAAAGGCAG TGGGTTAGAT ATATCCACCC TCTAAGAGTT TGCAGGTCAT  
 4451 CTATATATGA TAGCCAGAGA CACAACGCA GGACAGCCAG ACTCTGAGCA  
 4501 CTCTCCCCAG CTCCTTGTA CTCTGTTTCA GTGGTGACTT GTGACAAGAA  
 4551 TCCTGGGGAA CCTGTGCCTC ACTGTTCTCT GTCTTCTTTA ATAGAGTTTC  
 4601 GCTGCCACGA GACTCTTCTC CAAGAAGTCA TGCATTGTGC ACAGAATGAA  
 4651 CAAGGATGCC ATGCCCTCCC TTCAGGACCT CGATACAATG GTCAAGGAAC  
 4701 AGAAGGTAAA GTCCTGCCTT CTTCTTTGGA GTGACAGGAA GTCTTACAGT  
 4751 CTCCAGTACA CAGTGAAGTC ACCCCCATTC CCTCTTTGGT GGAGCATGAC  
 4801 AGCATGTTTG TCATGATAAA TGCCACAAAC ATGTAAACT GTTCAGTGTC  
 4851 TGCCTGAATG GAGGGTGGCT TCCACTGTGT CAGATGCCGT GGCCACATC  
 4901 TGCCTCTGCA GGGTCCAGTA AAGCACTGGC TATCTTGAGT GTCAGAGACC  
 4951 CAAAGGTCTG TACACTTCAG TACAAGCCCT CCATATTTCA AGGGCACACT  
 5001 CCTACAGTCG TTGGGGTTAT CAGAACTAGC AAACATAGAG ACTGGATTTT  
 5051 CAGATGAAAA GAAATCCTTT TTAAAGTCTA AGTATGCCTT ATACAATGTT  
 5101 TGAGATATTC TCAATACTAA AAAAAAAAAA ATTGTTGCTT GCTTGAAAAAT  
 5151 CAAATGTAAC CAAGTGCCT ATATCCAGTG TCAATCATGG CTGTAGTAGA  
 5201 TGGGAAGAGG GAGCCCGTGG TTTTCACAGT CAGACGCCTG AGTTATTCTT  
 5251 CTAAGTGATA AATTGGTTCC TATAACAAGC AAGCCAGTGA ATATAAATAA  
 5301 GCTCTATCTC AGAAGTTATC CTGTAGTGCT ACCCTAGAAT CTAAGAGAGC  
 5351 AAAAGTGCTT CAAATTTTCA AATAAGTTT GCTTTGGACT TCTGTTTTTC  
 5401 TAAACAACTA TAACTTCAAA CCATCTAAGC CTCGTGGGAC ACTTAGAAAT  
 5451 ACCAAGCCAT TCAAAGCTAG AATTGTTTCT TCACCTTACT TGAAAACAAA

FIG. 4 Cont.

5501 ATGACAACCA AAAATTGTCC CCACTGCCCT TGTACATCTT CAGATCAGTA  
 5551 AAGTCCTGGG CTCAGGGATC ATTCACTTTC TTTCTTTCCT TTCACACTCA  
 5601 ACTTCAGGGT AAAGGGCCTG GAGGAGCTCC TCCAAGGAC TTGATGTACT  
 5651 CCGTCAACCC TACCAGAGTG GAGGACCTGA ATACATTCGG ACCAAAGATT  
 5701 GCTGGCATGT GCAGGGGCAT CCCTACCTAT GTGGCCGAGG AGATTCCAGG  
 5751 TGTGTACCCT GAGATGCTGT ATATCCCAAT GCAGTACTGA GAGAGCCATC  
 5801 AGACACTCTA AAGTGTGACC ACAGACGGAC CAATCATGTG GATTATCAGA  
 5851 GCAAACACTT GCTTGCTCCT TGTGAGACAG TTGTCCATGC TTCAAAAGTT  
 5901 CATTAAAAAA AATAGTTCAC AGGCTCCTCA CAGAAACCTT AGTAGAATCC  
 5951 ACAGCTTCTG CTCTTAGTCT TACTTTTTAG AAAGTGAGAC CCAGAGAAAG  
 6001 GTCACAAAAC TTTTGTCTGG CTCAGGTTCT ATGTCTTTAA CTTTATAGAA  
 6051 TACCGTCTTT CTGGGTGGGT GGGCTCTAGA GTAAACTTCA AGTGAGTTCA  
 6101 AGGAAAGCAT GAGAAGTAGG GAAGACCAA TGAAGGAGA ATGCCAATGA  
 6151 AATCTATCGA TTCTATAGCG CCAATGCTTA ACTCCTAGGC GTTCAAAGAA  
 6201 TAGTATCCAC AAGGTGTCAG CCTAAGATCC TAATCTAACA GCAAGTTTTC  
 6251 AGATCTCTGA AGTGAAAAGA GAAAGCAAGA GAGGAACAGA GACAGAAACA  
 6301 GTAAGAGACA GAGAGGCAGA GACAAAGAGA CAGGGAGAAT AGAGAGGGAT  
 6351 TAAAATTAAT ATATAGTTTA GAAATTACGA CTCCTCACAG TCCCTGCAGA  
 6401 GTCCTAGGAT AGGCACTGAT TTGGACTTCT TTTCTTCTCA CTAGGACCAA  
 6451 ACCAGCCTTT GTAAGCAAAG AAGTGCTACA CAGCTGACAT ACTCTGGATT  
 6501 CTGCGGATGT CCTTCTGTGG AACATCAGTG GAGACATACT AGAAGTCACA  
 6551 GGAAACAAC CCGTGGGCTC TGACCATCGC AATGCTTGAT TATGAGAGTG

FIG. 4 Cont.

6601 TTCTCTGGGG GTTGTGATTA GCTTCTTTAA GGCTCAATAA ACCCACGTGG  
6651 CAGCACATCC AGTTTGTAAT GACATGCCTC ATGACTTCTA TGGGAGTCCA  
6701 ATGTGGCACC TGCCAGCCTG TATTCAGGAC CTCTCCGCTA TAAAGCATCC  
6751 CTCCAGAGTT TTCAAATACT ACAAAGCACA GCCTGGGTTT GGGCTCAGAT  
6801 AGGCCACTGC TGCCTGACTA CATTACAGAC AAACAAGTTT TAAAGAAAAG  
6851 AAAAAAGAGC TCAGAGTGGC TGAATCAGC AAGGGTGTTT TTCCTGCAAG  
6901 GAGCCAGAAG TATCAATAAT CACCCAAGGA GGAGACACTG GGAATGAGAG  
6951 ACTAGAACAC ACGCCTGCAG ATACGGAGAA CCTCAGCATT GCCGCTCTCT  
7001 CCCATAACTG CACACCCCCT TCTGTAAACT CTGCTTCTTT CTTTCACCTG  
7051 AAGATGGCCC TTGCTTTTTT TTATTATAGG ACANGATAAC TAGACCAGAA  
7101 AGTCAACCTG ACTCTCTACA TTTATATGTC TTCCCAGNTC AAGAAATATT  
7151 ATTTACTGGT GAATGGCACT TCTATATTCC CTTGGTTCAA TAAGTCTACA  
7201 GGATCCATTC ATTGACAGGC CAAGAGTGAG ATCACATGAT ACCCAAGCAC  
7251 ATGGGTCTTT CCTTGAAGGA GAAGGATCCA (SEQ ID NO:14)

FIG. 4 Cont.



1 ATGTTTCGTCGTGGGTCTGCTTGGCCTCCTTGCAGCTCCTGGTTTTGCTTACACGGTCAAC  
61 ATCAATGGTAATGATGGCAATGTAGACGGAAGTGGACAGCATTCGGTGAGCATCAATGGT  
121 GTGCACAACGTGGCCAATATCGACAACAATAACGGCTGGGACTCCTGGAATAGCCTCTGG  
181 GACTATGAAAACAGTTTCGCTGCCACGAGACTCTTCTCCAAGAAGTCATGCATTGTGCAC  
241 AGAATGAACAAGGATGCCATGCCCTCCCTTCAGGACCTCGATACAATGGTCAAGGAACAG  
301 AAGGGTAAAGGGCCTGGAGGAGCTCCTCCCAAGGACTTGATGTACTCCGTCAACCCTACC  
361 AGAGTGGAGGACCTGAATACATTCCGACCAAAGATTGCTGGCATGTGCAGGGGCATCCCT  
441 ACCTATGTGGCCGAGGAGATTCCAGGACCAAACCAGCCTTTGTACTCAAAGAAGTGCTAC  
501 ACAGCTGACATACTCTGGATTCTGCGGATGTCCTTTTGTGGAACATCAGTGGAGACATAC  
561 TAG (SEQ ID NO:15)

FIG. 5

1 MKLTMFVVGL LGLLAAPGFA YTVNINGNDG NVDGSGQQSV SINGVHNVAN  
51 IDNNNGWDSW NSLWDYENSE AATRLFSKKS CIVHRMKNKDA MPSLQDLDTM  
101 VKEQKGKGGPG GAPPKDLMYS VNPTRVEDLN TFGPKIAGMC RGIPTYVAEE  
151 IPGPNQPLYS KKCYTADILW ILRMSFCGTS VETY (SEQ ID NO:16)

FIG. 6

1 atgcctgact tctcacttca ttgcattggt gaagccaaga tgaagttcac  
51 aattgccttt gctggaacttc ttggtgtctt cctgactcct gcccttgctg  
101 actatagtat cagtgtcaac gacgacggca acagtgggtg aagtgggcag  
151 cagtcagtga gtgtcaacaa tgaacacaac gtggccaacg ttgacaataa  
201 caatggatgg aactcctgga atgcctctg ggactataga actggctttg  
251 ctgtaaccag actcttcgag aagaagtcac gcattgtgca caaatgaag  
301 aaggaagcca tgccctcct tcaagccctt gatgcgctgg tcaaggaaaa  
351 gaagcttcag ggtaagggcc cagggggacc acctcccaag agcctgaggt  
401 actcagtcac ccccaacaga gtcgacaacc tggacaagtt tggaaaatcc  
451 atcgttgcca tgtgcaaggg gattccaaca tacatggctg aagagattca  
501 aggagcaaac ctgatttcgt actcagaaaa gtgcatcagt gccaatatac  
551 tctggattct taacatttcc ttctgtggag gaatagcgga gaactaa (SEQ ID NO:17)

FIG. 7

1 MKFTIAFAGL LGVFLTPALA DYSISVNDDG NSGGSGQQSV SVNNEHNVAN  
51 VDNNGWNSW NALWDYRTGF AVTRLFEKKS CIVHKMKKEA MPSLQALDAL  
101 VKEKKLQKG PGGPPPKSLR YSVNPNRVDN LDKFGKSIVA MCKGIPTYMA  
151 EEIQGANLIS YSEKCISANI LWILNISFCG GIAEN (SEQ ID NO:18)

Human	1	MKFTIVFAGLLGVFLAPALANYNIDVNDNNNAGSGQQSVSVNNEHNVAN	50	
Pig	1	MKFTIAFAGLLGVFLTPALADYSISVNDDGNSGGSGQQSVSVNNEHNVAN	50	
	51	VDNNNGWDSWNSIWGYGNGFAATRLFQKKTCTIVHKMKKEVMPSIQSLDAL	100	
	51	VDNNNGWNSWNALWSYRTGFAVTRLFRKKSCIVHKMKKEAMPSLQALDAL	100	
	101	VKEKKLQKGKPGGPPPKGLMYSVNPKNKVDLDFGKNIANMCRGIPTYMA	150	
	101	VKEKKLQKGKPGGPPPKSLRYSVNPNRVDNLDFGKSIVAMCKGIPTYMA	150	
	151	EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN	185	(SEQ ID NO:13)
	151	EEIQGANLISYSEKCSANILWILNISFCGGIAEN	185	(SEQ ID NO:18)

	1	150
Human	MKFTIVF.AG LLGVFLAPAL ANYNIDVN.D DNNNAGSGQQ SVSVNNEHNV	
Pig	MKFTIAF.AG LLGVFLTPAL ADYSISVN.D DGNSGGSGQQ SVSVNNEHNV	
Mouse	MKLTM.FVVG LLGLLAAPGF A.YTVNINGN DGNVDGSGQQ SVSINGVHNV	
	51	100
Human	ANVDNNGWD SWNSIWDYGN GFAATRLFQK KTCIVHKMNK EVMPSIQSLD	
Pig	ANVDNNGWN SWNALWDYRT GFAVTRLFEK KSCIVHKMKK EAMPSLQALD	
Mouse	ANIDNNGWD SWNSLWDYEN SFAATRLFSK KSCIVHRMNK DAMPSLQDL	
	101	150
Human	ALVKEKKLQG KGPGGPPPKG LMYSVNPKNV DDLSKFGKNI ANMCRGIPTY	
Pig	ALVKEKKLQG KGPGGPPPKS LRYSVNPNRV DNLDKFGKSI VAMCKGIPTY	
Mouse	TMVKEQK..G KGPGGAPPKD LMYSVNPTRV EDLNTFGPKI AGMCRGIPTY	
	151	188
Human	MAEEMQEASL FFYSGTCYTT SVLWIVDISF CGDTVEN (SEQ ID NO:13)	
Pig	MAEEIQGANL ISYSEKCISA NILWILNISF CGGIAEN (SEQ ID NO:18)	
Mouse	VAEEIPGPNQ PLYSKKCYTA DILWILMSF CGTSVETY (SEQ ID NO:16)	

FIG. 10

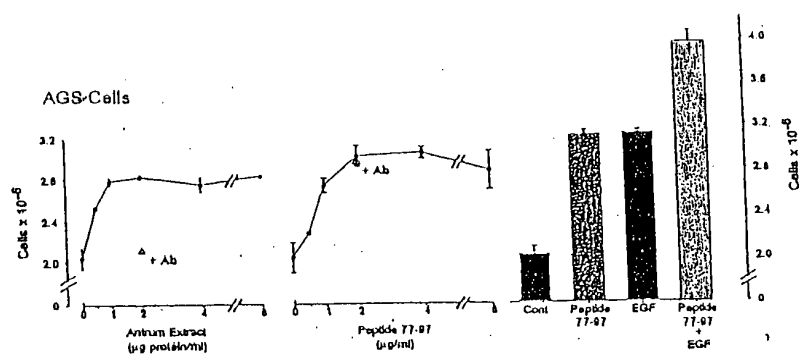


FIG. 111

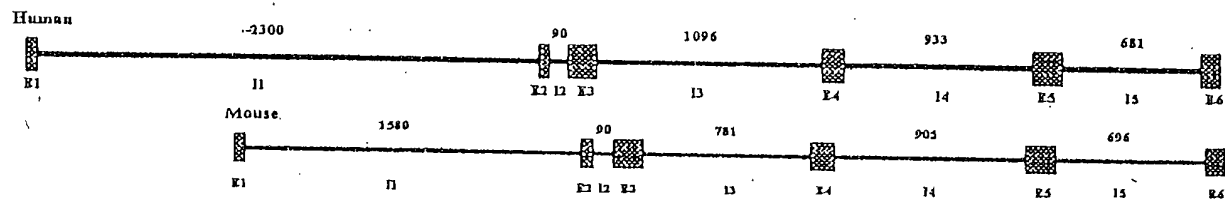


FIG. 122